REMARKS

The foregoing amendments and the following comments are responsive to the objections and rejections set forth by the Examiner in the January 27, 2003 Office Action.

Claims 1-3, 5-38, and 39-44 are pending in this application. The Examiner rejected Claims 1-3 and 5-38. In particular, the Examiner rejected Claims 1-3, 5, 6, 8-19, 21-33 and 35-38 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,885,003 ("the Ladden patent") in view of U.S. Patent No. 6,130,577 ("the Tamba patent") further in view of U.S. Patent No. 6,002,719 ("the Parvulescu patent"). The Examiner further rejected Claims 7, 20 and 34 under 35 U.S.C. § 103(a) as being unpatentable over the combination of the Ladden patent in view of the Tamba patent in view of the Parvulescu patent and in further view of U.S. Patent No. 5,469,471 ("the Wheatley III patent").

By this amendment, Applicant has added new Claims 39-44. Reconsideration of the application, as amended, is respectfully requested.

REJECTION OF CLAIMS 1, 8, 18, 27, 30 and 35 UNDER 35 U.S.C. § 103(a)

The Examiner rejected Claims 1, 8, 18, 27, 30 and 35 under 35 U.S.C. § 103(a) as being unpatentable over the Ladden patent in view of the Tamba patent and further in view of the Parvulescu patent. In view of the above claim amendments and the following discussion, Applicant respectfully traverses this rejection.

Tamba appears to disclose a mobile communication device capable of operating as either personal handyphone system (PHS) or a personal digital cellular system (PDS). Tamba's device switches, based on the output of the received field strength detection circuit, between a codec for performing coding and decoding processing on a speech signal in the PHS mode and a codec for performing coding and decoding on a speech signal in the PDS mode.

As the PHS function and the PDS function do not utilize the same transmitting and receiving frequency bands, the PHS and PDS codecs are not compatible. Also, Tamba appears to disclose utilizing the received field strength to determine when to switch between the PHS and PDS modes. Thus, it appears that Tamba teaches the use of an alternate coder to increase signal quality.

Parvulescu appears to disclose a non-real time two-way messaging system, which utilizes data compression techniques to reduce battery drain. Since the messaging system is not intended for real time conversations, the data compression processor may take a long period of time to optimize the data compression to produce a message of optimum compactness. When transmitted, the compact message requires a minimal amount of transmission time and thus, the amount of battery capacity required to complete the transmission is also minimal. Again, as the messaging system is not intended for real time conversations, Parvulescu appears to disclose operating the data compression processor at a low clock rate to further reduce battery drain.

Ladden appears to teach a wireless communication system where the base station determines when a link between the mobile station and a speech recognition system is required. The base station instructs the mobile unit to switch from a first codec specific to human speech to a second codec specific to speech recognition. Ladden appears to disclose a base station in which the speech coding functions performed by the codec specific to human speech are bypassed when the mobile station requires connection to the codec specific to speech recognition. In this case, the codec in the mobile station specific to speech recognition communicates directly with the front-end of the speech recognition system in the base station. Thus, it appears that the codec specific to human speech is not compatible with the codec specific to speech recognition.

The Examiner states that the information transmitted from MS300 to BSS303 in Figure 3 of the Ladden patent requires a single decoder at the base station. It appears that only a single decoder is located at the base station because only speech encoded by the mobile station's codec A is handled at the base station. The second decoder appears to be located at the speech recognition system. The base station's codec A appears incapable of handling the speech encoded by the mobile station's codec B. Speech from the mobile station's codec B bypasses the base station's codec A and is routed to the speech recognition system. Ladden teaches on column 3 lines 48-54:

> Codec A is a typical digital codec optimized to code/decode human speech, while codec B is specially designed to enhance the speech recognition capability of the speech recognition computer equipment

> located in the PLMN. In the preferred embodiment, codec B is a front end portion similar to a front end portion of the SRS.

In the Ladden reference, it appears that the speech encoded by coded A in the mobile station is decoded by codec A in the base station, while the speech encoded by codec B in the mobile station is decoded by the front end portion of the speech recognition system. It appears that the speech data at the output of codec A and the speech data at the output of codec B are not decoded by a single decoder, but by two decoders. One decoder is located in the base station and a second decoder is located in the speech recognition system. Thus, it appears that speech encoded by codec A and speech encoded by codec B can not be decoded by a single decoder. Codec A and coded B are not compatible coders.

In contrast, in at least one embodiment of the invention, the mobile unit, not the base station, determines the quality of signals received from the base station. Based on this quality, the mobile unit determines whether the voice data can be adequately transmitted, using a second speech coder, which is less accurate, reduces processor usage, and requires less battery capacity to encode speech than a first speech coder. The voice data is not stored or delayed for significant or noticeable periods of time, as occurs in a non-real time system. In at least one embodiment of the invention, the wireless communication system determines if the signal quality can be reduced, not increased, in order to conserve battery life.

Additionally, in an embodiment of the invention, the first and second speech coders are compatible. The specification discloses on page 11, lines 9-14:

> In one embodiment, the first speech coder 320 and the second speech coder 325 are compatible. Whether the first speech coder or the second speech coder 325 is used to encode and compress the speech data 305, the speech data 330 at the output of the codec 135 may be decoded by a single decoder. This is because in one embodiment, the first speech coder 320 and the second speech coder 325 are members of a family of speech coders which can exchange compatible data.

The same decoder may be used to decode speech, which is encoded by any member of a family of compatible coders. In an embodiment of the invention, the first speech coder and the second speech coder are compatible. Further, the first speech

coder and the second speech coder are members of a family of speech coders which can exchange compatible data.

In another embodiment of the invention, the alternative speech coder is less accurate than the primary speech coder in coding and decoding the voice data. Furthermore, in one embodiment, the primary speech coder is a bit-exact speech coder and the secondary speech coder is not a bit-exact coder and thus uses less battery power.

Neither Ladden, Tamba, nor Parvulescu, alone or in combination, disclose, teach or suggest a mobile unit which determines the quality of the received signals so as to switch between compatible coders when the signal quality is high in order to reduce power consumption in the mobile unit. Furthermore, neither Ladden, Tamba, nor Parvulescu, alone or in combination, disclose, teach or suggest the use of switching to a less accurate coder within a family of compatible coders if the determined signal quality is high.

Applicant asserts that Claims 1, 8, 18, 27, 30 and 35 are not obvious in view of Ladden, Tamba and Parvulescu. Applicant therefore respectfully submits that Claims 1, 8, 18, 27, 30 and 35 are patentably distinguished over the cited references and Applicant respectfully requests allowance of Claims 1, 8, 18, 27, 30 and 35.

REJECTION OF CLAIMS 2, 3, 5, 6, 9-17, 19, 21-26, 28, 29, 31-33 and 36-38 UNDER 35 U.S.C. § 103(a)

The Examiner rejected Claims 2, 3, 5, 6, 9-17, 19, 21-26, 28, 29, 31-33 and 36-38 under 35 U.S.C. § 103(a) as being unpatentable over the Ladden patent in view of the Tamba patent and further in view of the Parvulescu patent. In view of the above claim amendments and the following discussion, Applicant respectfully traverses this rejection.

Claims, 2, 3, 5, and 6, which depend from Claim 1, are believed to be patentable for the same reasons articulated above with respect to Claim 1, and because of the additional features recited therein.

Claims 9-17, which depend from Claim 8, are believed to be patentable for the same reasons articulated above with respect to Claim 8, and because of the additional features recited therein.

Claims 19, and 21-26, which depend from Claim 18, are believed to be patentable for the same reasons articulated above with respect to Claim 18, and because of the additional features recited therein.

Claims 28 and 29, which depend from Claim 27, are believed to be patentable for the same reasons articulated above with respect to Claim 27, and because of the additional features recited therein.

Claims 31-33, which depend from Claim 30, are believed to be patentable for the same reasons articulated above with respect to Claim 30, and because of the additional features recited therein.

Claims 36-38, which depend from Claim 35, are believed to be patentable for the same reasons articulated above with respect to Claim 35, and because of the additional features recited therein.

REJECTION OF CLAIMS 7, 20, 34 UNDER 35 U.S.C. § 103(a)

The Examiner rejected Claims 7, 20, 34 under 35 U.S.C. § 103(a) as being unpatentable over the combination of the Ladden patent in view of the Tamba patent in view of the Parvulescu patent, and further in view of the Wheatley III patent. In view of the above claim amendments and the following discussion, Applicant respectfully traverses this rejection.

Claim 7, which depends from Claim 1, is believed to be patentable for the same reasons articulated above with respect to Claim 1, and because of the additional features recited therein.

Claim 20, which depends from Claim 18, is believed to be patentable for the same reasons articulated above with respect to Claim 18, and because of the additional features recited therein.

Claim 34, which depends from Claim 30, is believed to be patentable for the same reasons articulated above with respect to Claim 30, and because of the additional features recited therein.

NEW CLAIMS 39-44

New Claim 39 is similar to pending Claim 1. Whereas Claim 1 claims the first speech coder is compatible with the second speech coder, Claim 39 claims the first

speech coder and the second speech coder are members of a family of speech coders which can exchange compatible data. This is supported in the specification on page 11, lines 9-14.

New Claims 40-44 depend from new Claim 39 and are believed to be allowable for the same reasons articulated above with respect to Claim 39, and because of the additional features recited therein.

New Claims 39-44 have been added to more fully define the Applicant's invention and are believed to be fully distinguished over the prior art of record.

REQUEST FOR TELEPHONE INTERVIEW

Pursuant to M.P.E.P. § 713.01, in order to expedite prosecution of this application, Applicant's undersigned attorney of record hereby formally requests a telephone interview with the Examiner as soon as the Examiner has considered the effect of the arguments presented above. Applicant's attorney can be reached at (949) 721-2998 or at the number listed below.

CONCLUSION

In view of the forgoing, the present application is believed to be in condition for allowance, and such allowance is respectfully requested. If further issues remain to be resolved, the Examiner is cordially invited to contact the undersigned such that any remaining issues may be promptly resolved. Also, please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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Exhibit I - Clean Version Of Pending Claims

1. (Previously Amended) A wireless communication system comprising:

a base station which transmits signals;

a mobile unit which receives the signals from the base station, the mobile unit containing a first speech coder and a second speech coder, wherein the first speech coder is compatible with the second speech coder, the mobile unit encoding voice data in a signal to transmit using either the first speech coder or the second speech coder;

a signal strength detector in the mobile unit which determines the quality of the signals received by the mobile unit; and

a coder selector in the mobile unit which directs the mobile unit to switch from the first speech coder to the second speech coder when the quality of the signals exceeds predetermined levels, wherein the second speech encoder reduces power consumption in the mobile unit.

2. (Original) The wireless communication system of Claim 1, wherein the coder selector switches from said second speech coder to said first speech coder when the quality of the signals is less than the predetermined levels.

3. (Original) The wireless communication system of Claim 1, wherein the coder selector may be bypassed.

5. (Previously Amended) The wireless communication system of Claim 1, wherein the first speech coder is bit exact and the second speech coder is non-bit exact.

6. (Original) The wireless communication system of Claim 1, wherein the signal strength detector measures the estimated frame-by-frame bit error rate.

7. (Original) The wireless communication system of Claim 1, wherein the signal strength detector is based upon absolute power.

8. (Previously Amended) A method of conserving power in a wireless communication system comprising the acts of:

determining the quality of at least one signal received from a base station; and

selecting in a mobile unit a secondary speech coder when the signal quality exceeds a predetermined value, wherein the secondary speech coder is compatible with a primary speech coder.

9. (Original) The method of Claim 8 further comprising the act of selecting a primary speech coder when the signal quality is less than the predetermined value.

10. (Original) The method of Claim 8, wherein the act of selecting a secondary speech coder may be selectively activated.

11. (Original) The method of Claim 8, wherein the secondary speech coder is not bit-exact.

12. (Previously Amended) The method of Claim 8, wherein the secondary speech coder is one of a family of speech coders which can exchange compatible data.

13. (Original) The method of Claim 8, wherein the secondary speech coder saves power.

14. (Original) The method of Claim 8, wherein the secondary speech coder reduces processor loading.

15. (Original) The method of Claim 8, wherein the quality of signals received is determined by the RX Quality.

16. (Original) The method of Claim 8, wherein the quality of signals received is determined by the estimated frame-by-frame bit error rate.

17. (Original) The method of Claim 8, wherein the quality of signals received is determined by a parity check.

18. (Previously Amended) A wireless communication system comprising;

a processor usage indicator which determines the loading on a processor in a mobile unit; and

a speech coder selector in a mobile unit which causes the mobile unit to use a secondary speech coder when the loading on the processor exceeds a set value, wherein the secondary speech coder is compatible with a primary speech coder.

19. (Original) The wireless communication system of Claim 18, wherein the speech coder selector may be selectively activated.

20. (Previously Amended) The wireless communication system of Claim 18, wherein the secondary speech coder saves power.

21. (Previously Amended) The wireless communication system of Claim 18, wherein the secondary speech coder reduces processor loading.

22. (Previously Amended) The wireless communication system of Claim 18, wherein the speech coder selector causes the mobile unit to use the primary speech coder when the loading on the processor is less than a set value.

23. (Original) The wireless communication system of Claim 22, wherein the primary speech coder and the secondary speech coder are members of a family of speech coders.

24. (Previously Amended) The wireless communication system of Claim 23, wherein the secondary speech coder is not bit-exact.

25. (Previously Amended) The wireless communication system of Claim 23, wherein the primary speech coder is bit-exact.

26. (Previously Amended) The wireless communication system of Claim 23, wherein encoded data may be decoded by a single decoder.

27. (Previously Amended) A wireless communication system comprising;

a signal strength indicator which determines the quality of a signal received by a mobile unit; and

a speech coder selector in the mobile unit which causes the mobile unit to use a secondary speech coder when the signal strength exceeds a set value, wherein the primary speech coder and the secondary speech coder can exchange compatible data.

28. (Previously Amended) The wireless communication system of Claim 27, wherein the speech coder selector causes the mobile unit to use the primary speech coder when the loading on the processor is less than a set value.

29. (Original) The wireless communication system of Claim 27, wherein the speech coder selector may switch between the primary speech coder and the secondary speech coder each frame.

30. (Previously Amended) A wireless communication system comprising;

means for determining the quality of a signal received; and

means for switching in a mobile unit from a first speech coder to a second speech coder when the signal quality exceeds a predetermined value, wherein the second speech coder is compatible with the first speech coder.

31. (Original) The wireless communication system of Claim 30, wherein the means for switching switches from the second speech coder to the first speech coder when the signal quality is below the predetermined value.

32. (Original) The wireless communication system of Claim 30, wherein the second speech coder consumes less power than the first speech coder.

33. (Original) The wireless communication system of Claim 30, wherein the switching means is software controlled.

34. (Original) The wireless communication system of Claim 30, wherein the predetermined value may be dynamically adjusted.

35. (Previously Amended) A wireless communication system comprising;

means for determining the loading on a processor; and

means for switching in a mobile unit from a first speech coder to a second speech coder when the processor loading is less than a set value, wherein the second speech coder is compatible with the first speech coder.

36. (Original) The wireless communication system of Claim 35, wherein the means for switching switches from the second speech coder to the first speech coder when the processor loading is less than a set value.

37. (Original) The wireless communication system of Claim 35, wherein the switching means may be selectively disabled.

38. (Previously Amended) The wireless communication system of Claim 35, wherein the first speech coder and the second speech coder are members of a family of speech coders which can exchange compatible data.

39. (New) A wireless communication system comprising:

a base station which transmits signals;

a mobile unit which receives the signals from the base station, the mobile unit containing a first speech coder and a second speech coder, wherein the first speech coder and the second speech coder are members of a family of speech coders which can exchange compatible data, the mobile unit encoding voice data in a signal to transmit using either the first speech coder or the second speech coder;

a signal strength detector in the mobile unit which determines the quality of the signals received by the mobile unit; and

a coder selector in the mobile unit which directs the mobile unit to switch from the first speech coder to the second speech coder when the quality of the signals exceeds predetermined levels, wherein the second speech encoder reduces power consumption in the mobile unit.

40. (New) The wireless communication system of Claim 39, wherein the coder selector switches from said second speech coder to said first speech coder when the quality of the signals is less than the predetermined levels.

41. (New) The wireless communication system of Claim 39, wherein the coder selector may be bypassed.

42. (New) The wireless communication system of Claim 39, wherein the first speech coder is bit exact and the second speech coder is non-bit exact.

43. (New) The wireless communication system of Claim 39, wherein the signal strength detector measures the estimated frame-by-frame bit error rate.

44. (New) The wireless communication system of Claim 39, wherein the signal strength detector is based upon absolute power.

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